

# The Structures of the G Protein Coupled Receptors

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We have studied the structure of rhodopsin and beta adrenergic receptors in several crystal forms. Extreme micro crystallography was absolutely essential to our success. This work provides important insights into ligand selectivity and G protein activation. The third intracellular loop which is important for G protein activation is resolved in several of our structures. We now for the first time have observed a conformation of the fully inactivated adrenergic receptor and the comparison of different loop conformations is allowing us to give a possible molecular explanation for the phenomenon of basal activity of GPCRs.

The development of micro crystallography at high brilliance synchrotrons is absolutely essential for the study of difficult membrane protein targets. The one micrometer scanning diffractometer and the nano diffractometer open new opportunities for protein crystallography.

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